

358
CURSORY ACCOUNT

OF THE

VARIOUS METHODS

OF

SHOEING HORSES

HITHERTO PRACTISED;

WITH.

INCIDENTAL OBSERVATIONS.

BY

WILLIAM MOORCROFT.

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CURSORY ACCOUNT

VARIOUS METHODS

SHOEING HORSES

INTERESTING



EDITION

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1800

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TO THE

RIGHT HONOURABLE

FRANCIS AUGUSTUS
LORD HEATHFIELD,

BARON HEATHFIELD OF GIBRALTAR,

LIEUTENANT GENERAL IN HIS MAJESTY'S SERVICE,
AND COLONEL OF HIS MAJESTY'S TWENTIETH
REGIMENT OF LIGHT DRAGOONS.

MY LORD,

THAT a large proportion of the horses in this country are rendered useless by diseases in their feet, long before the strength of their bodies becomes in any material degree impaired, is a fact of general notoriety.

The feet are certainly more exposed to wear than any other part of the body, and thence, are necessarily more subject to disease; yet lamenesses in these parts do not so much arise from the labour the horse undergoes, as from circumstances connected with shoeing. To lessen materially the number of these accidents, is an object of perhaps more importance, than to discover the best manner of treating

treating any particular disease to which the horse is incident ; as the former occur every day, the latter, comparatively, seldom. This, therefore, must serve as an apology, for offering to the public, my opinions, *on Shoeing*, rather than on any other branch of Veterinary Science.

It has been long observed, that certain shapes of shoes produced lameness more frequently than others ; from which it follows, that there must exist certain principles as to the construction of the shoe, and as to the manner of its being applied to the foot, which, if carried generally into practice, would afford a more firm support to the weight of the body, and cause the foot to retain its natural figure and soundness, for a much longer time than is now found to be the case. In the following sheets, I have endeavoured briefly to shew what these principles are ; and in doing this, I have not been so desirous of displaying novelties of practice, as of bringing forwards what is of most utility. Hence it may seem, that in some instances, I have borrowed ideas from other writers ; and this may be true, without my being conscious of it ; as many of these ideas have taken root in my mind so deeply, as to render it impossible for me to distinguish such as were started by others, and have been confirmed or denied by my own experience, from such as have arisen from my own practice alone.

Whilst

Whilst investigating the principles of Shoeing, I became aware, that although I might ascertain what shape or construction of shoe was best adapted for general use, it was indispensably necessary, at the same time, in order to its being generally introduced, that it should be in the power of the most indifferent workman to forge it, at least as easily as one of the most inartificial form. For if much skill was required to manufacture such a shoe, it could obviously be only made by good workmen, and would necessarily be sold at a higher price, than one in the making of which less labour and skill were employed. And farther, it would naturally lead a workman, in all instances, to recommend and adopt such a shoe as he could make with the greatest ease and profit; and to decry such as it was beyond his power, or incompatible with his profit, to manufacture. Now, unfortunately, it appeared, that the shoe which afforded the prospect of becoming the most extensively useful, required much accuracy of workmanship, and was therefore liable to the objections just adduced.

The probable employment of such a shoe was so limited, as to promise little benefit to the public at large, or little advancement to this branch of science. It seemed essential, to reconcile the interest of the farrier with that of the public; and this appeared only attainable by improving the art

of manufacturing the shoes. The great advantages derived from introducing machinery in lieu of manual exertion, in many of the mechanical arts, naturally led me to consider of a mode of applying it to this purpose.

And whatever my expenses, whatever my anxiety in making a great variety of experiments may have been, I feel myself already in some degree recompensed by the reflection, that I have prosecuted to the utmost of my power, a subject in the immediate walk of my profession, and which appears to involve a matter of some interest to society. However, I trust, that at a period not far distant, I shall be enabled to offer to the Public, better shoes than have usually been made, at a reasonable price, and that in such a way as will promote the interests of farriers in general. As a manufacturer of Horse-shoes, I hold it incumbent on me to recommend that principle of shoe, which my past experience has shewn to be the best; and I disclaim any other merit, than that of having, by means of machinery, procured at an easy price, the use of an article which was not before easily attainable.

I should not discharge the duty I owe to the public, and to myself, were I not at this moment, to urge the necessity of attending to certain principles in shoeing, in order to guard, at any future time, against the attempts of persons to pass off shoes, of which the only recommendation may be
their

their immediate cheapness. In this, I mean nothing personal. With regard to the shoes made by my machinery, I rest my expectations of the public opinion, both as to their form and other properties, on the result of public experience, being well assured, that the trial will be fair, and the verdict just.

In the prosecution of this plan, I have experienced much kindness and patronage from many gentlemen; but from your Lordship in particular, I have uniformly and unremittingly received encouragement and support, to a degree of which I am unable to express my feelings.

I trust I shall be forgiven, when I add, that I am the more flattered by your Lordship's approbation, from a conviction, that the good opinion of one so eminently qualified to judge of the subject, will, in the eye of the world, give a sanction to the invention, which I could not have ventured to hope for from any exertions of my own. Allow me, therefore, to subscribe myself, with respect and gratitude,

MY LORD,

Your Lordship's much obliged,

and obedient Servant,

WILLIAM MOORCROFT.

Oxford Street,

March 25, 1800.

CURSORY ACCOUNT, &c.

IF a horse were to go without any defence to his feet, on the pavements or roads in this country the outer parts of the foot would unavoidably be broken, worn, or otherwise injured in a very short time.

Shoeing is obviously intended to prevent these evils.

Experience, however, daily proves, that shoes occasion many alterations in the form of the hoof, and various diseases in parts within it, which do not occur when the foot is exposed to wear in its natural state : but, as it is admitted on all hands, that some coating or defence is absolutely necessary to guard this part from injury when a horse is worked, it becomes of importance to inquire what kind of shoe is best adapted to this purpose, and is of itself attended with the fewest inconveniences.

A review of the history of Horse-shoeing shews, that within the last hundred years, shoes of a great variety

variety of forms have been strongly recommended to the public at different times. Each of these has been tried by individuals ; each has had a temporary success ; each has had its partisans ; but none have ever been generally adopted. From this variety in the forms of shoes it is evident, that the first principles of shoeing have never been established so as to place the subject beyond all dispute ; and it is the object of the present treatise to lay before the public some plain facts, which may tend to demonstrate the comparative merits of the different methods of shoeing hitherto practised. To do this, it is not necessary either to enter into an anatomical detail of the structure and natural history of the internal parts of the foot, or into a minute description of the external parts ; with the division of which, into crust, sole, bars, and frog, it is presumed every one interested in the subject is sufficiently acquainted : but it may not be improper to mention some of the general functions of those parts which form the bottom of the foot, and are more particularly connected with the subject of shoeing.

The crust constitutes the principal and constant support of the foot.

The sole ties the lower edge of the crust together ; by its upper part forming a strong arch it affords a firm basis to the bone of the foot, and
by

by its strength it defends the sensible parts within the hoof.

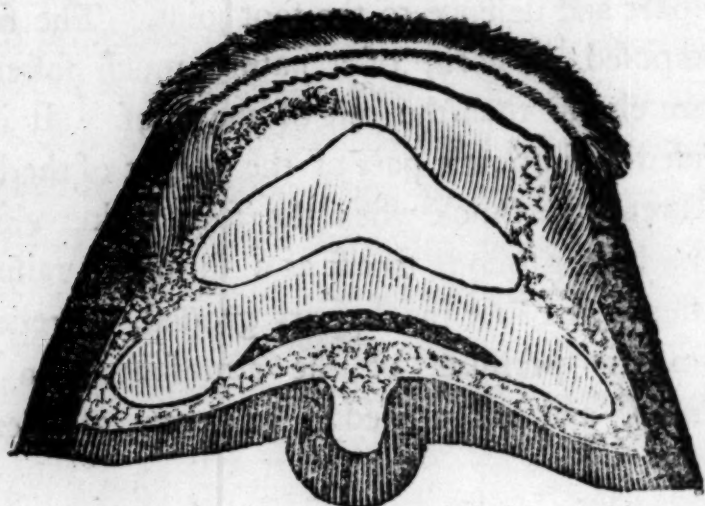
The bars are ridges, which like buttresses strengthen the sole, to prevent the sides of the foot from coming too near each other, and form a support and defence to the foot joint. The frog is composed of horn, of a nature much softer and more elastic than the rest of the hoof. It is intended to support a part of the weight of the body, to break the shock when the foot strikes violently on hard ground, to act as a spring in raising it, to steady the foot in slippery ground, to relieve it from the pressure of the atmosphere in deep ground, and as a wedge to keep asunder the heels.

The whole of the hoof is lined by a substance which has a very acute sense of feeling, and which it is of the utmost importance to guard from injury.

The lower edge of the crust is the part most exposed to wear, and consequently most in need of artificial defence. The sole, and especially that portion of it which joins with the crust, is next most liable to be injured; but the frog and bars would scarcely suffer at all were the foot to remain unshod.

The

The following is a section of a foot crosswise, shewing the relative thickness and situation of the crust, sole, and frog.



It must be admitted as a general fact, that the greatest part of the weight of the body is supported by the shoe; and it must be equally obvious, that this support will be the more effectual the greater the surface on which it rests.

It happens, however, that the parts of which the bottom of the foot is composed, cannot all bear the same degree of pressure without being injured; hence, therefore, it becomes necessary to confine the bearing to those parts which are found capable of supporting the whole of the weight without injury, and to prevent any pressure from
taking

taking place on those which would be injured by it.

Now, long experience proves, that the sensible parts within the hoof do not suffer if the crust or wall have a proper bearing on the shoe; but that if the horny or outer sole bear upon the shoe in any considerable degree, then the sensible or inner sole being pinched between the iron and horny sole *below*, and the bone of the foot *above*, the horse is lamed. It must follow, therefore, that in proportion as a greater quantity of the crust is brought to bear flat on the shoe, the firmer the horse must stand; and the less likelihood there is of any pressure taking place between the sole and the shoe, the less chance will there be of his being lamed.

These principles ought to be kept constantly in view, and a shoe should be considered more or less perfect as it corresponds with them.

OF SHOES FOR THE FORE FEET.

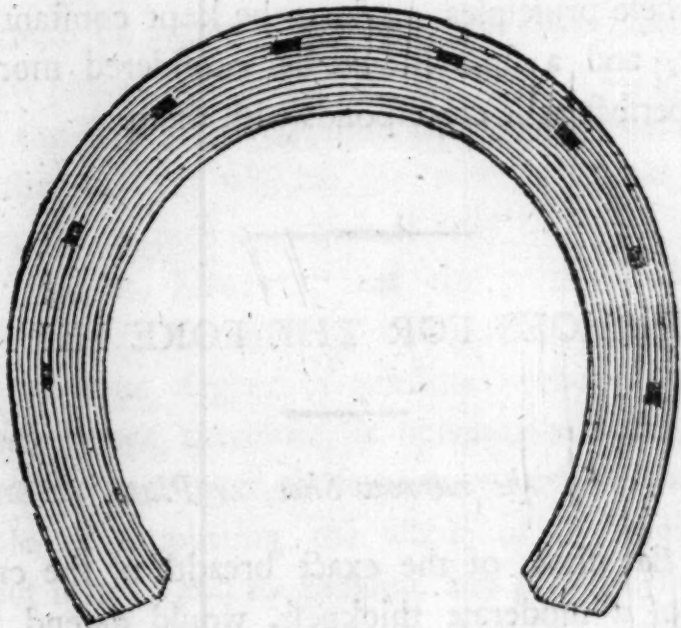
Of the narrow Shoe, or Plate.

A flat shoe, of the exact breadth of the crust, and of a moderate thickness, would defend this
part

part sufficiently as long as it lasted; but as it would wear out in a few days, or even in a few hours, when the friction happened to be violent, and as very frequent shoeing is expensive, as well as hurtful to the hoof itself, this kind of shoe is only fit for racing, or hunting on soft ground.

It becomes adviseable, therefore, for the sake of *longer wear*, that the surface of a shoe be made broader than what is absolutely necessary for the *sake of support*; and this additional surface should be disposed in such a way as may be least likely to produce inconvenience to the foot.

Of the Shoe with a flat upper Surface.



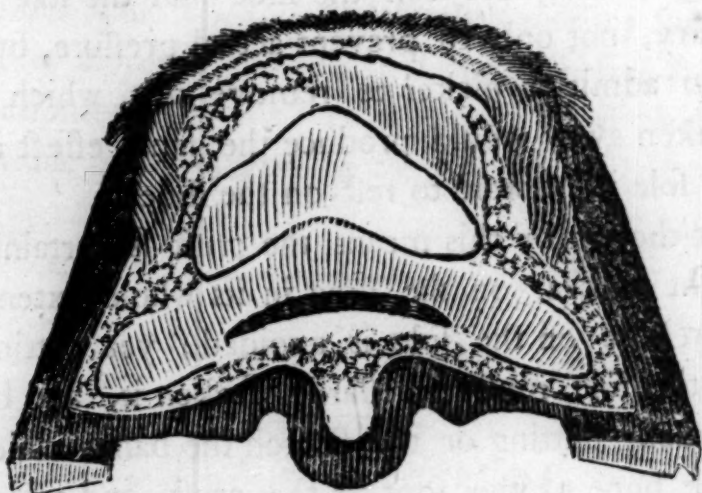
A Shoe

A shoe perfectly flat on its upper surface, such as is here represented, and broader than the crust, would in many cases press on part of the sole, if the sole were to be left entire: but, in order to prevent this, it has been recommended to cut away part of the sole itself, so as to form a hollow between it and the shoe. It can scarcely be doubted but that a cavity between the shoe and the sole is necessary, not only to prevent actual pressure, but also to admit a picker to remove dirt, which if not taken away would produce the same effect as if the sole itself were to rest on the shoe.

But though by this means the crust is certainly brought to bear on the shoe in its whole extent, and pressure on the sole is avoided; yet cutting away the sole must necessarily weaken it, and by continually putting on the stretch the bands which tie the bone of the foot to the crust, and which sling or suspend it within the hoof, make them less capable of resisting the constant pressure downwards.

Indeed, when a flat shoe is applied to a foot of which the sole is much cut away every time of shoeing, it will frequently happen that the sole will gradually lose its natural hollowness, and becoming flat around, constitute what is usually termed a *pumiced* foot. But if a hollow or very sloping shoe be employed, the hollowness of the sole will become greater than natural, in consequence of this

this part being forced upwards by the crust pinching it on all sides, whilst the weight of the body squeezes the lower edge of the foot down the slope of the shoe. This practice of cutting away the horny sole likewise, by depriving the sensible sole of a portion of its natural defence, renders it subject to be bruised or wounded by stones or other hard bodies*.

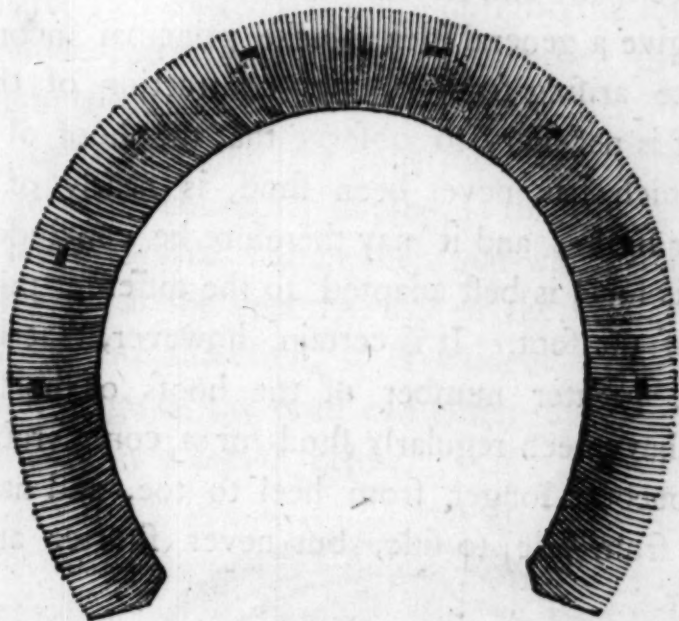


This figure shews the sole cut away as lately recommended, in order that the shoe with a flat upper surface, as here represented, may not come in

* Feet become *pumiced* also from general inflammation of these parts; this constitutes the disease which is usually called *founder*: they also become *contracted* from injuries done to the coffin joint. If these defects come on gradually and slowly, they may be considered as connected with the method of shoeing, and may to a certain degree be remedied; but if they come on rapidly, they may be attributed to the causes just mentioned,

in contact with it. The lower surface of this shoe is hollow, and consequently on hard ground can only rest on its outer edge.

Of the common Shoe.



The shoe in common use has its upper surface hollow, or sloping, regularly from the outer to the inner edge, and was probably so formed originally,
to

mentioned, and, generally speaking, they do not admit of a complete cure. From want of knowing, or of attending to the different causes of these alterations, much disappointment and expence have occurred, and more especially in cases of contracted feet; when, after filing away the crust, which has been recommended as a specific, blistering the coronet, steeping the feet in warm water for several hours a day for months together, and turning out afterwards in moist land, it has proved that although the contraction was removed the lameness continued.

to avoid pressing on the sole when left with its full thickness; but though this slope may at first prevent any pressure on the sole, yet ultimately it produces many and serious mischiefs.

To give a general idea of the principal inconvenience arising from it, viz. contraction of the foot, it is necessary to observe that the hoof of a colt, which has never been shod, is nearly of a circular figure, and it may therefore be concluded that this form is best adapted to the different purposes of the foot. It is certain, however, that by far the greater number of the hoofs of horses which have been regularly shod for a considerable time, become longer from heel to toe, and narrower from side to side, but never shorter and broader.

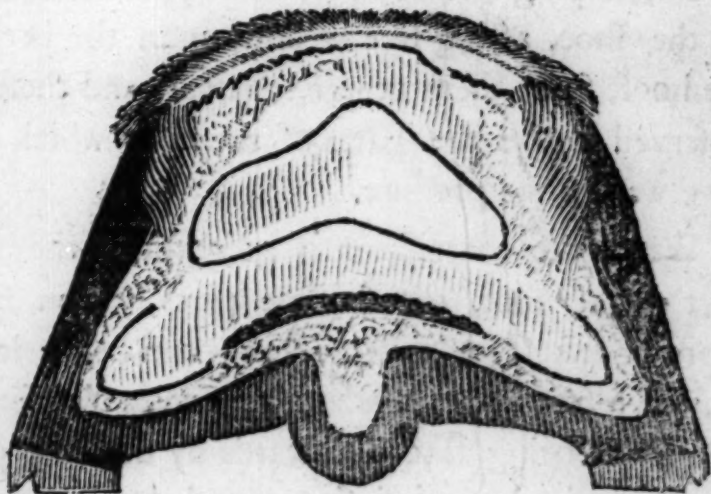
The alteration of the lower part of the foot from a circular to an oval form, takes place gradually, and whilst it is going on, the thickness of the crust, in various parts, also undergoes a change; that is to say, at the toe it becomes much thicker than is natural, and, in a corresponding degree, thinner towards the quarters and the heels; and as this change always accompanies the lengthened state of the foot, it may be inferred that they both depend on the same causes.

When the foot has acquired an oval form, it is said to be contracted, although, in fact, there is

no loss of crust, this substance being only improperly disposed.

The toe of the contracted foot is somewhat more pointed and sloping than it should be, the quarters are flatter and more upright, the sole more hollow, and the heels nearer together than they ought to be.

As in preparing the foot for the shoe the crust is generally cut rather sloping, so that its outer edge is left somewhat higher than that which joins the sole, and as the upper surface of the shoe slopes in an opposite direction, it is evident that only the outer edge of the crust can come in contact with the shoe, it is shewn below.



This *bearing part* is, indeed, able to support its proportion of the weight of the body, but it certainly is not capable of sustaining as much, with

safety to itself, as if the *whole* of the crust were to rest on the shoe, and hence, from the excess of pressure; it is frequently crushed down and broken off. The shoe is usually put on so as to project a little beyond the crust, and the foot does in effect stand in the hollow of the shoe upon an edge, or narrow line, instead of being supported by a flat surface; and as the weight of the body reposes upon this narrow line of crust, which is in contact with the shoe, it naturally, and continually, tends to press the foot down the sloping surface of the shoe, into too small a compass, and thus this slope becomes the principal cause of oval and contracted feet.

The sloping surface of the two opposite branches of the shoe, acting like wedges upon the heels of the hoof, force them nearer together, and these are observed to be the parts of the foot which first give way to the pressure.

Whilst the contraction is going on in the outer part of the foot, the sensible parts within suffer more or less from compression; and hence lameness is a frequent attendant on contracted feet.—The crust being forced inwards by the side pressure at the heels, as just stated, and the sensible sole becoming therefore squeezed between that and the bar, is bruised, and blood oozing from it into the
infensible

insensible sole, forms a red spot, which is called a corn*.

It may easily be imagined, from the toe being longer than natural, the horse must be liable to strike it against irregular ground, and that, from the foot being narrower, he must stand unfirm; and it is well known, that horses having very long and narrow feet, are much disposed to trip and stumble.

From what has been before stated, as well as from a general view of the whole subject, it appears, that a shoe ought to possess the following qualities:

It ought to be so strong, as to wear a reasonable time.

It ought to give to the crust all the support it can receive.

It ought not to alter the natural shape of the foot; and

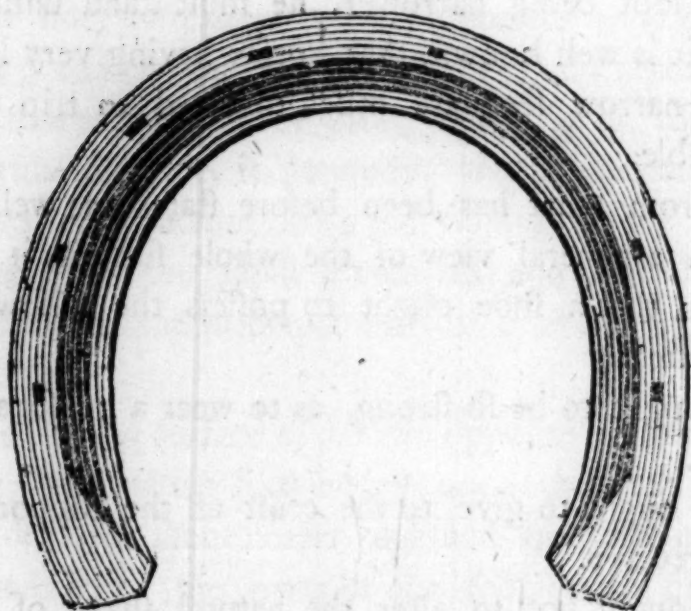
It ought not to press at all on the sole, nor to injure any of the natural functions of the foot.

Of the Seated Shoe.

The shoe best calculated to answer the purposes just mentioned, is that so strongly recommended by Mr. Osmer and Mr. Clark. The upper surface of this

* Corns are likewise produced by the sole resting DIRECTLY upon the shoe.

this shoe consists of two parts ; an outer part, which is a perfect plane near the rim, corresponding with the breadth of the crust, and called the seat ; and an inner part sloping from the seat, and distinguished by the name of the bevel.



The seat is obviously intended to *support* the crust in its whole extent, the bevel to *lie off* the sole ; and this part being made more or less broad, according to the kind of work proposed to be done, will give the requisite strength to the shoe.

As *the whole* of the crust bears on the seat, it is less liable to be broken than when only a *small part* of it rests on the shoe. In consequence, likewise, of the crust resting on the flat seat, the weight

weight of the body has a tendency to spread the foot wider in every direction, rather than to contract it, as has been observed to happen with the common shoe; and it has in fact been found, in various instances, that a foot contracted by the common shoe, and afterwards shod with the seated one, has become wider without the horse having been taken from his usual work; and again, that a foot being of a full size and proper form when first shod with the seated shoe, has retained the same size and form without the slightest alteration, as long as the seated shoe was used.*

By the slope or bevel in the shoe, a cavity is formed between it and the sole, sufficient to admit a picker,

* On the 19th of November, 1797, a charger belonging to Lord Heathfield, was shod on his fore feet with seated shoes, struck in dyes, after the manner by which money is coined. The same individual shoes have been worn ever since that period to the present day, the 25th of March, 1800. They have been removed regularly once every month, in order that the superfluous growth of the hoof might be taken away, but have never been altered in the slightest degree during this time except once, when it was found necessary to make each shoe a quarter of an inch wider at the heels, on account of the feet having spread so much, although they were of a very good proportion when the shoes were first put on. This case is brought forwards, not to prove the superior wear of these shoes, but to shew that this principle has produced all the advantages, which could be expected from any shoe.

a picker, and to prevent pressure on this part, without the sole itself being hollowed, and consequently weakened.

For if it be one of the functions of the horny sole to defend the sensible sole, of which, from its situation and nature, no one can doubt, it must be evident, that the more it is left, the stronger it must necessarily be, and of course the more competent to perform its office.

The value of every practical object is best ascertained by experiments; and the results of the trials with various shoes, which have engaged the attention of the Author for several years past, have been decidedly in favour of the seated shoe. And, though he is not sanguine enough to suppose, that this shoe will prevent lameness in every case, he is, nevertheless, warranted by experience to assert, that it will diminish its frequency.

As this shoe has been long known, it may appear extraordinary that it has not been more commonly employed; and this circumstance might lead to a suspicion, that either farriers in general are unacquainted with its real advantages, or that, though in theory it may appear preferable to all others, yet that in actual practice it does not maintain its superiority. Neither of these positions, however, is well founded, for the Author can with confidence assert, as a general fact, that when a
farrier

farrier is applied to for a pattern shoe of that figure, which from his judgment and experience he would most recommend, *and for which, on such occasions, a much higher price is given*, the seated shoe is in much the greater number of instances preferred to every other. This must be considered as a sufficient proof, that farriers are aware of its superiority, and the trials made by individuals have established its practical advantages beyond all doubt.

But it is not extraordinary, that a tradesman should endeavour to turn his labour to the greatest account, nor that the consumer of any article should, in most cases, be seduced by cheapness.

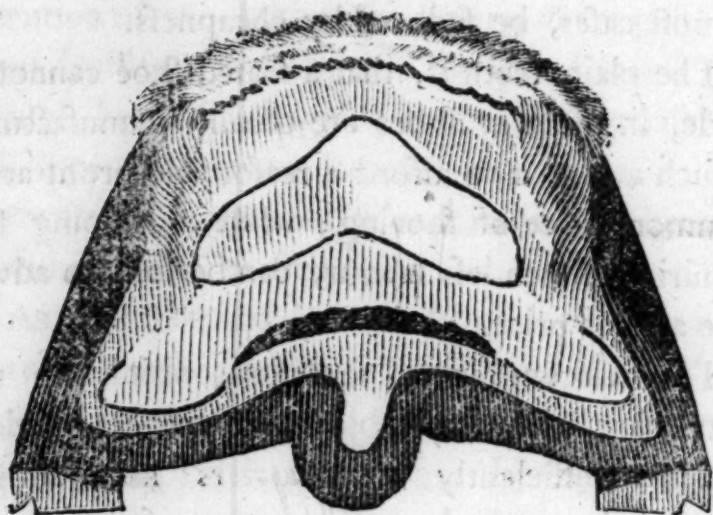
The plain truth is, that a seated shoe cannot be made, in the way shoes are usually manufactured, at such a rate as to afford a reasonable profit at the common price of shoeing; while a sloping shoe requiring much less labour, can be sold to advantage at that price.

This circumstance, therefore, which no man conversant with the subject will venture to deny, explains sufficiently why farriers have adopted this shoe in general practice, in preference to all others, although it has never been recommended as the best.*

The

* It has become a kind of fashion lately to declaim against the ignorance of farriers, and in no instance more than in what regards

The use, therefore, of the flat shoe, with the practice of hollowing the sole, must be considered as an acknowledgment of the propriety of the principles just laid down, with this difference only, that the means of avoiding pressure on the sole by the flat shoe, consist in cutting away part of the sole itself, whilst with the seated shoe part of the iron is removed, and the sole is left with its natural thickness, as appears from the following figure.



gards shoeing ; yet, perhaps, more is urged against them in this respect than there is just cause for. It is not here meant to enter into a defence of many practices, relative to shoeing, which a more scientific inquiry, in latter times, has proved to be erroneous, nor to contend that there has not been much to censure in general ; but justice impels the Author to remark, that he has sometimes met with farriers, who have possessed more real information than

Of the lower Surface of the Shoe.

As a general principle, it must be acknowledged that the surface of the shoe, which is intended to bear on the ground, should be of such a form, as will afford the firmest tread.

Now a flat surface comes in contact with even and hard ground in more points than any other, and is therefore unquestionably the best: but to prevent a horse from slipping in soft and hilly ground, it is contended that the surface of the shoe should be rough; for hunting it has therefore been recommended that the lower surface be grooved, or that it be divided into two parts.

But the grooves soon fill up with dirt, and then this surface becomes flat, with the disadvantage of the shoe itself being weakened by the grooves.

And although when the surface is divided into two parts, like that next the foot, it certainly does afford a steady and firm tread in soft ground, yet the shoe is so much weakened by the bevel on both sides as to be very liable to be pressed against the sole; and should a horse so shod be ridden violently over stones or hard ground, the shoe would soon be worn thin by the friction being confined to the
outer

than is to be found in the writings of those who have been so severe against them; and it must be remembered, that long continued practice and accumulated experience, furnish us with facts which no speculative disquisition or scientific research can afford.

outer edge, and would break or become wider. In either case the nails would tear away with them the outer edge of the crust, and thus expose the sensible parts within the hoof to the risk of being injured at the next shoeing; and, at the same time, rob the foot of a portion of its natural support. A narrow shoe with a flat surface will be found to possess more advantages for hunting than any other kind, and for common use a flat surface will also prove to be the best, both for security of tread and for wear.

Of Caulkings.

Formerly it was a general custom to use what were called caulkings, which were made by bending the ends of the shoe. These were intended to prevent the horse from slipping; and as at the time when they were first used the roads were not made of such hard materials as they are at present, the caulkings sunk into the ground, and the bottom of the foot had a pretty equal bearing upon it. This practice, therefore, was not attended with the mischiefs which ensued when the public roads were made more solid and even.

For when the caulkings cannot sink into the ground, they raise the heels so much as scarcely ever to allow the frog to touch it, and thus prevent that degree of friction and pressure which is essential for

for keeping this part in a healthy state ; for if the perspirable matter be not rubbed from off the frog occasionally, it becomes putrid, and dissolving the surface where it chiefly accumulates, produces what is called a running thrush, which leads to the destruction of the part.

And as when the frog is ulcerated and rotten, it can scarcely afford such resistance as is necessary to keep the heels at their original distance, even when the crust rests on a flat surface, it necessarily gives way more rapidly than a sound frog to the pressure of the weight of the body, forcing the heels towards each other down the sloping surface of the shoe in common use. In consequence, likewise, of the heels being thus raised, the weight is thrown forwards upon the toe, the knees are weakened, and the fetlock joints are strained.

From the improved state of the roads, caulking has gradually become less general, and, at present, two on each shoe are used for heavy draught horses alone ; for the lighter kind, one on each shoe is employed ; whilst for saddle horses, which are intended to be worked on the road only, caulking is scarcely ever made use of, and in fact are never necessary, unless, perhaps, in frosty weather.

But although it has been fully ascertained, that horses may be hunted with safety in some countries without caulking, yet it is always safer for the rider, and

and commonly so for the horse, to have recourse to them. When two caulkingings are used on each shoe, the inner one frequently wounds or bruises the opposite leg, and it has therefore been found most advantageous to have one only, and that on the outer heel; and, although its use may now and then cause some inconvenience, yet no expedient has been hitherto adopted, which is equally effectual in preventing slipping, and which of itself produces fewer accidents.

The back part of the caulkingings of the fore shoe, should not be made so as to stand square or straight from the upper surface, but to slope forward, and under the shoe, so as to render it less liable to be caught and pulled off by the toe of the hind shoe, either when the horse becomes somewhat tired, or when going in stiff and deep land.

Of the Tip, or Short Shoe.

More than two hundred years ago, it was a common practice to shoe the toes only of such feet as were contracted by improper shoeing, in order to cause the back part of the foot to expand by the weight of the body constantly pressing upon it; and ever since that time, this method has occasionally been employed for the same purpose. But about the middle of the 18th century, the short shoe, tip or half-moon shoe, as it has been called by

by different writers, was strongly recommended for general use, under an idea that it would hinder feet from contracting, prevent corns, and other diseases, from taking place, and likewise give such a firmness of tread as to render caulking, in every circumstance, totally unnecessary. And, as contracted feet in many instances had become wider from the use of this shoe, employed as a means of cure, it did not seem unreasonable to conclude, that its constant use might put an end to contraction altogether. But, however this practice might be at first approved by men eminent in their profession in different countries, the experience of a few years shewed, that though in fact it did prevent feet from contracting, yet it also brought along with it many inconveniences which did not exist when the common shoe was employed. For, if a horse so shod was much used when the roads were wet, it happened frequently that the horn at the heels was rubbed away faster than it grew, and thus the sensible parts within the hoof becoming inflamed and sore, the animal was lamed; and from the weight of the body likewise bearing too much on the back part of the leg, strains were often caused in the hind tendons, and in the fetlock joints, and especially in such horses as were used for hunting or racing. And again, that this kind of shoe also required to be removed much oftner than the common one, in order to prevent the ends of it from
being

being forced into the hoof, and to preserve the even tread of the bottom part of the foot by frequently cutting down the toe, without which, the heels soon become too low and the toe too long. On the whole, therefore, the disadvantages of the short shoe so much overbalanced the advantages, as to cause it to be abandoned for general purposes. And although, at various times since that period, attempts have been made to bring this shoe into general use, they have uniformly failed, from the effects just mentioned constantly resulting, so that the tip is now seldom employed, except for feet under circumstances of disease.

Of the Thin-heeled Shoe.

On the failure of the tip, as a shoe for general use, it was insisted by some of those who had entertained a full confidence in its success, that to preserve the foot in a healthy state, little more was necessary, than to allow the frog to come in contact with the ground at every step; and that this might uniformly happen, it was advised that the shoe should be thin at the heel, and gradually thicken as it approached the toe, where it should be three times as thick as at the heel. By means of this shoe it was believed that not only would the frog, when not diseased or cut away, bear on the ground at every step,
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but, that by the iron being carried up to the heel, it would possess all the good qualities of the short shoe, without any of its imperfections. Few objections were made to the principles of this shoe on its outset, on account of the plausibility of the theory by which it was accompanied; but its application in a general way did not completely justify the sanguine expectations which were formed of its success. For it frequently happens, when the shoe is very thin at the heel, that this part is bent out of shape, or broken, before the toe is half worn; and from its thinness, it plays against the foot like a spring, loosens the heel-nails, and is more subject to be thrown off than the ordinary shoe. It has one advantage over the short shoe, inasmuch as it prevents the heel from being worn away faster than it grows; but the objection of the weight of the body being thrown too much on the back tendons, still remains. Much caution is likewise necessary in employing this shoe on horses which have been accustomed to thick-heeled ones, in order that the back parts of the leg may gradually accommodate themselves to bear the increase of weight which is cast on them. For if this shoe be put on a horse which has always worn a thick-heeled one, it will frequently produce lameness, by straining the back part of the leg

leg on the first trial, and more especially if the horse be ridden or driven fast.

That the tendons may not therefore suffer from being unusually weighted, it is advised to thin the heel of the shoe by degrees, and to cut away a proportional quantity of crust from the toe, in order to bring about something like an equal bearing. But, though this expedient may in a degree answer the end when the toe is long, it affords no resource when it happens to be short.

And it is scarcely to be imagined, that any mode of shoeing is likely to become extensively useful, which it requires so much nicety of management to ensure its success. If the frog come in contact with the ground at every step, it certainly follows, that the heels will be pressed farther asunder if they be then contracted, and this circumstance will likewise prevent their getting too near each other. But, although the thin-heeled shoe does allow the frog to strike the ground more frequently than a thick-heeled one, and consequently is so far better calculated to answer the purposes just mentioned, yet its long continued use is attended with an inconvenience from which the thick-heeled shoe is exempt.

For as by the thinness of the heel the weight is thrown too much on the back part of the leg,
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it of course operates equally on the back part of the foot, so that the heels and back part of the frog sustain more pressure than the toe and the fore part of the frog; and this disproportion of weight causes the heels and the back part of the frog to shelve and slope, as it were, under the foot, instead of growing nearly straight downwards. And this shelving or sloping direction of the heels under the foot takes place gradually and regularly, notwithstanding the toe be cut down frequently. By this change in the line of direction of the heels, the back part of the limb is deprived of its natural support at the time it most wants it, that is to say, when the weight becomes more than usually thrown upon it. And by the heels being in effect made thus low, the skin is often brought against the ground and bruised. And here it must be remarked, that it is extremely difficult to restore to feet the proper direction and depth of their heels, when they have once become low and sloping.

One of the most specious reasons for having the toe thick, arises out of the fact of the wear being generally greater there than in any other part of the shoe; but surely it cannot be sound economy, that the true tread of the horse's foot should be destroyed, and that the hind tendons of the leg should be subject to perpetual risk of
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being strained, for the purpose of saving the price of one or two set of shoes in the year, even if there existed no other less dangerous expedient which might answer the same end.

Experience, however, the surest guide in practical matters, seems to have established as a general rule, that it is more advantageous to the tread of man, that his shoe should be at least as thick at the heel as at the toe; and a shoe-maker would materially risk the displeasure of his customers, were he, with a view to increase the size of the calf of the leg, or to prevent the toe from wearing out, to make no other shoes than such as were three times as thick at the toe as at the heel.

Is it not likely that common sense would reject such practice as unnatural and absurd? And it may easily be imagined what would happen to foot soldiers, thus shod on a march, when loaded with their accoutrements, or to an opera dancer, whilst exhibiting his agility on the stage. And certainly it is not straining the argument, to compare in this point of view, the foot of a horse with that of a man, as they both answer the same end, and of course must both suffer, more or less, from thus continually going up hill.—Such being the disadvantages arising from the use of the thin-heeled shoe, it may be suspected, that it is a profitable one to manufacture.

The

The reverse of this is, however, the fact, provided the shoe be made according to the pattern laid down; that is to say, that the branches regularly swell from the heel, till they meet at the toe, which should be three times as thick as the heel. And this gradual swell is unquestionably the only means by which the whole surface of the thin-heeled shoe can be brought to bear at once on hard ground; but it requires more labour to make this than any other kind of shoe. And accordingly, workmen have hit upon two expedients for keeping up the name and counterfeiting the principle of this shoe, so as to save them much labour. The first consists in making the toe thick, and in sloping it off so rapidly on the quarters, that if the shoe be laid on a flat surface, it will be found to touch it only at the toe and at the heels. This kind of shoe may with greater propriety be called a *thick-toed*; than a *thin-heeled* shoe.

The second is still more simple, the shoe being made as nearly as possible of the same thickness throughout, except within about an inch of the heels, where it is bevelled off suddenly to a thin edge; and so *in point of fact* this shoe may be said to be thin-heeled, although *in point of effect* it is only a parallel shoe, robbed of a portion of its flat surface.

These are abuses of practice, and do not attach to the principle of the shoe just mentioned; but they afford a strong proof, that if the principle were ever so good, it would not be generally adopted, from the difficulty of applying it fairly to practice.

Of the Parallel Shoe.

A foot which has never been shod, in general rests upon the ground in such a manner, that every part of it supports its due proportion of the weight of the body; and it is of as much consequence to preserve this natural tread, as it is to guard the structure of the foot from immediate injury: for if a larger proportion of weight be thrown upon a part of the foot, than it has been accustomed to bear, it will necessarily suffer from over pressure; and a long continuance of this will not only injure the foot itself, but will communicate more or less of false bearing to the joints, will strain the bands which tie the end of the bones together, and destroy that just balance of power which naturally exists betwixt the different sets of muscles, intended to move the limb in different directions.

Now it has been shewn, that the thick-heeled shoe throws the pressure of the weight too much on the fore part of the foot; and that the thin-heeled shoe causes it to act too much upon the back

part

part of the foot. And as both these extremes have very frequently proved prejudicial, and are consequently unfit for general use, it remains to examine what effects would result from a shoe of the same thickness at the heel, as at the toe. Here it must be obvious, that *with* such a shoe, the tread of the foot must be in the same plane, as if it were *without* a shoe. And as it is of the utmost importance to retain this even tread, it is clear that this can be effected with ease and simplicity, by the application of the parallel shoe, without the least necessity for having recourse to the difficult and complicated plan of cutting away the foot, in some parts excessively, and of leaving it untouched in others, in order to adjust it to the thin-heeled shoe. And if it be most advantageous for the foot, that the frog should come in contact with the ground frequently, that sort of shoe will surely be in this respect the best, which will allow the *whole* surface of the frog to have a *full and equal* bearing on the ground, instead of the *back-part* resting much more considerably upon it than the *fore-part*, as must necessarily happen with the thin-heeled shoe.

Formerly it was imagined, that the frog was liable to be bruised and hurt, if it came much on the ground, and shoes were made thick at the heels, to prevent this happening; but latterly a contrary doctrine has been held, and it has been maintained, that

that the frog cannot be brought too much against the ground; and the heels of the shoe have been accordingly thinned, to allow of this taking place at every step.

In practical matters which admit of much theory, it is no unusual circumstance to find, that a system, which for a time was considered excellent, shall all at once lose its ground, and be displaced by another, the very reverse, both as to principle and effect. And on a mature consideration of the subject, the best and simplest practice has been found frequently to lie between the two opposite systems.

Now it must be remembered, that the frog has several offices to perform; among which, that of breaking the force of the blow when the foot strikes violently against the ground, is one of the most important. And for the due performance of this function, its flexibility and spongy nature are most admirably calculated. But if, for want of pressure and cleanliness, the frog becomes very soft and ulcerated, it no longer is able to defend the sensible parts immediately above it, from being wounded and bruised.

And as on the other hand, from being exposed to too much pressure, it is found to acquire a degree of hardness, nearly equal to that of any other part of the hoof, and as it gains this hardness by losing its spongy nature, it becomes of course
less

less capable of breaking the blow, and of preventing the jar from being communicated to the parts above.

As therefore it appears, that the frog may become too soft or too hard, from too little or too much pressure, it follows, that pressure in some degree is necessary to keep it in health. And although it is scarcely possible to ascertain what degree is best suited to this end, and the discussion of this point would afford ground for much speculation, yet the knowledge of the inconveniencies which arise from the opposite extremes, has led to a practice equally distant from both. This consists in the surface of the frog, when the foot is just shod, not being left on a level with the lower surface of the shoe, but rather a sixth part, or a quarter of an inch short of it. And by attending to this simple rule, the frog has been found to remain sound, without becoming either very soft or very hard.*

It may be urged against the parallel shoe, that it will wear out sooner at the toe than the thick-roed one, and this will certainly be the case; but may
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* Although this rule cannot immediately be applied to all feet, yet it will admit of more general application, than at first sight may appear probable; and with proper management, might in time be adopted in almost every instance.

in part be remedied by leaving the toe solid, instead of making a groove or fuller mark round it, and may be entirely obviated, by steeling the fore part of the shoe of horses which wear much at the toe, or are constantly worked on a pavement.

Indeed it would be an excellent practice to steel all shoes; for by the toe being thus made harder than the rest, it would be prevented from being so readily rubbed away; and the waste would be nearly alike in every part, till the shoe was worn out.

The additional expence of steeling, is too trifling to be weighed against the advantage of the natural plane of tread being preserved to the last.

Of the Shoes for the Hind Feet.

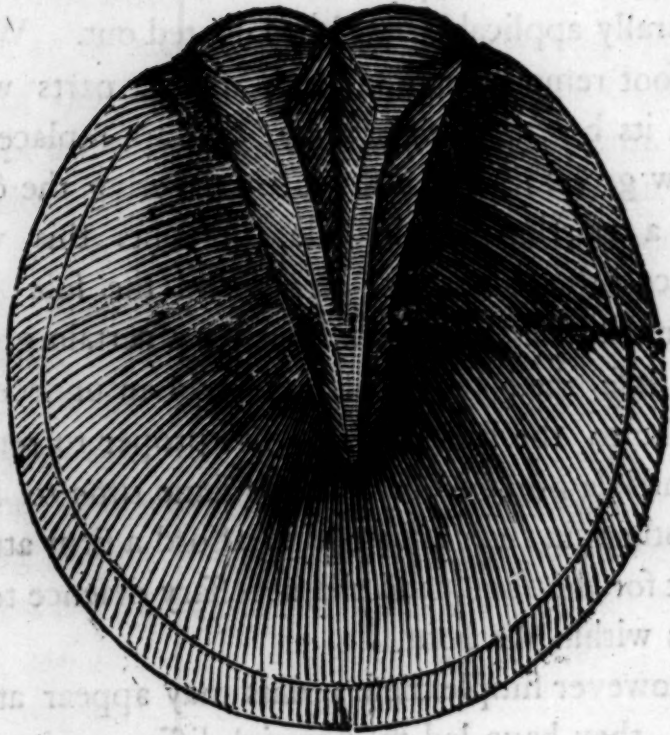
From the circumstance of the sole of the hind feet being much more hollow than that of the fore feet, a shoe with a flat upper surface, may be generally applied.

Of preparing the Foot to receive a Shoe.

The present being a work which treats only of the general principles of Shoeing, such precise rules as may apply to every particular case, cannot be

be laid down, but such methods as, by their simplicity, lead to a practice the most safe and most generally applicable, will be pointed out. Whilst the foot remains unshod, the different parts which form its bottom, wear away, and are replaced by a new growth; but a shoe, by covering the crust, and a portion of the sole, prevents this wear. Hence, therefore, the crust and the sole grow faster than they wear; and as after a certain growth they lose their roughness, and add an unnecessary weight to the limb, it becomes proper to remove the useless portions, and at the same time to leave the others in such a state as to afford a firm attachment for the shoe, and the necessary defence to the parts within the hoof.

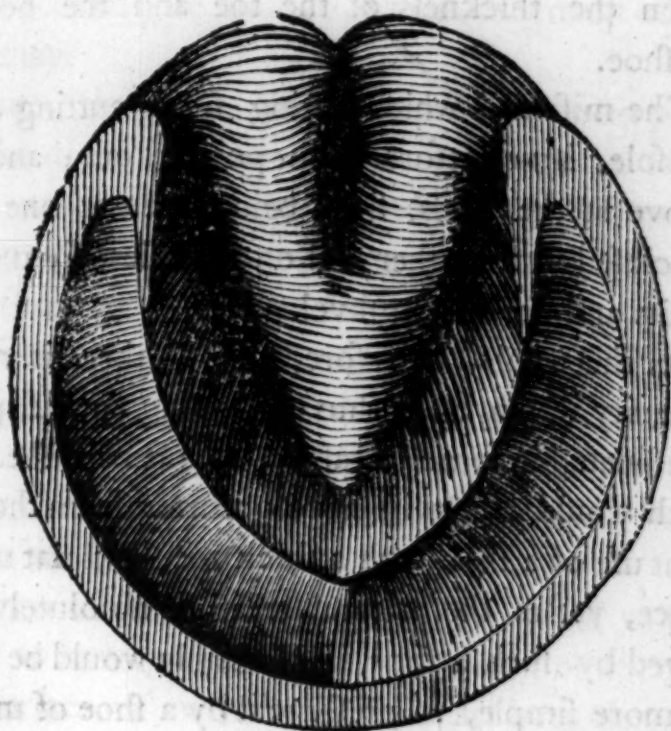
However simple these points may appear at first view, they have led to material difference in practice. For with some, it has been customary to thin the sole very much, to hollow, or rather scoop out the greatest part of the bars, to pare away and trim the frog into a given shape, which habit has rendered pleasing, and as it were necessary, to the eye of the workman; and to separate the frog from the heels, by making a wide and deep notch between them.



The frequency of lameness in feet so treated, gave rise, with others, to the practice of lowering the crust only, and of leaving the superfluous growth of the sole and other parts, to perish and fall off.

This, although a better practice than the former, had yet its inconvenience; and latterly, another plan has been recommended, which consists in cutting away much of the crust at the toe, and little at the heels; in hollowing the sole throughout its whole extent, but especially in the corner

corner of the heel between the crust and the bars, and in leaving the frog and the bars to grow in full luxuriance.



This method is obviously brought forwards to suit the thin-heeled shoe; for the removal of a considerable portion of the sole and crust at the toe, affords, as it were, room for supplying with iron the place of the horn taken away, and thus aims at giving the natural tread to the foot; which however it almost always fails of effecting,

ing, from it not being in general practicable to take away from the toe a quantity of horn, equal to the quantity of iron added; that is to say, three times as much from the toe, as from the heels, the difference recommended between the thickness of the toe and the heel of the shoe.

The mischiefs which spring from cutting away the sole, have before been pointed out; and the groove at the heels, from being open at one end, and closed at the other and on the sides, frequently admits and harbours gravel.

On the whole, therefore, though there is much ingenuity displayed in thus contriving and adapting expedients, in some measure, to prevent the evils which would otherwise have occurred from the frequent use of a shoe with a thick toe, and flat upper surface, yet as the natural tread is absolutely destroyed by such a shoe, it certainly would be safer and more simple, to preserve it by a shoe of moderate and equal thickness throughout; and instead of sacrificing part of the sole to the shoe, to keep the sole in its full thickness, and to remove part of the iron.* It seems in theory, an easy matter to remove such parts as are become useless, and to leave

* As this is a matter of great importance, the Author trusts he shall stand excused for having recurred to it more than once.

leavē such as are useful, untouched; but in point of fact, this is very difficult. This difficulty arises from there not existing any strong marks or lines, by which what is useless can be distinguished from what is useful; and therefore some dependence must necessarily be placed upon the judgment of the workman.

Since, therefore, there is not any line to point out the division between what ought to be taken away, and what ought to be left, it becomes necessary to look out for some other circumstance, which may serve as a guide in distinguishing them; and some important knowledge, in this respect, may be gained, by attending to the manner in which a foot, which has been long shod, is gradually disencumbered of its useless portions, when left to itself.

When the shoe is taken off, the crust will be found to have grown beyond the level of the sole, the surface of which will appear irregular, and marked with cracks in various directions, and the edges of the frog will generally be ragged.

Now, as the hoof continually grows, whether it be worn away or not; in the latter case, the newly formed horn, pushes before it the outer part, which, when it has attained a certain distance from the vessels within the hoof, no longer receives any moisture from them, and thus becoming dry, loses
its

its attachment with the living horn, and falls off. Thus the dead portion of the crust gradually breaks down in small pieces, till it reaches the level of the tough and living sole. The sole separates in scales of an irregular form, but generally thick near the frog, and thinner as they approach the crust; and frequently the upper part of the bar comes away with that portion which it joins, leaving the top of the bar, which remains on a level with the remaining sole.

The old frog, in detaching itself from that underneath, does not observe a mode equally regular with the sole, as sometimes it separates in one continued layer, and at others, in small fragments; but in the latter case it has been usually undermined, by its perspirable matter having become putrid from being confined, and dissolving, partially, both the old and new substance of the frog, where it happens to have lodged.

The business of the workman, at each time of shoeing, should be to imitate this natural operation, and therefore the Author recommends; That the crust be reduced to a level with the edge of the tough and living sole, and be left perfectly flat, in order to come in contact, in its whole extent, with the flat surface of the seated shoe; that the sole be made smooth, by taking away the dry and crumbly
dead

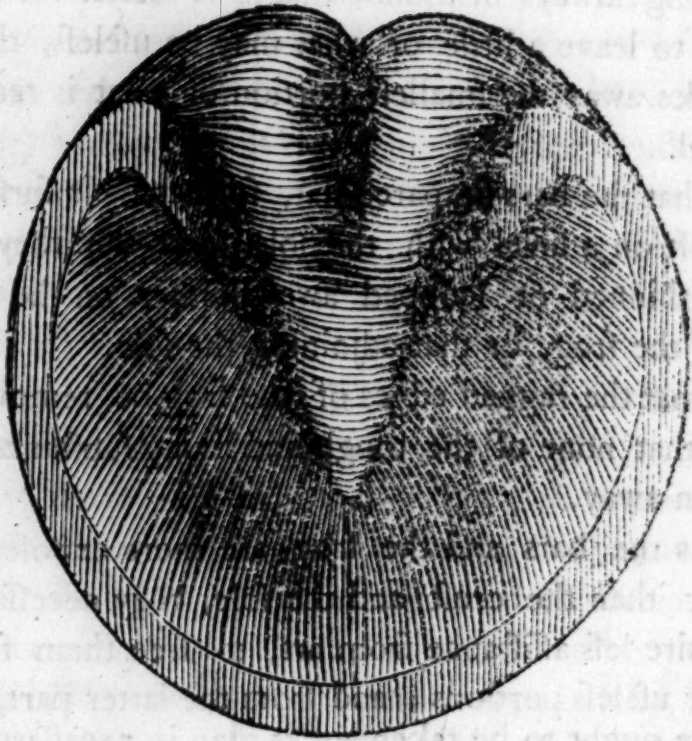
dead horn, which renders its surface irregular, but that none of the tough or solid horn be removed; keeping always in mind, that it is better for the foot to leave a little of what may be useless, than to take away the smallest portion of what is really useful.

That the bars be pared flat, so that their surface be left on a level with the sole; but that they be not thinned or scooped away, either on the side next the frog, or that adjoining the sole.

That the ragged edges of the frog be removed, but that none of the tough and living substance be taken away.

As the bars and the frog are more exposed to wear than the crust and the sole, they necessarily require less assistance from art, to free them from their useless portions; and from the latter part, no more ought to be taken away than is necessary for rendering the surface smooth, and for preventing dirt from being harboured in the clefts.

Of



Of the Nails.

Eight nails for each shoe are found to be enough for saddle and light draught horses; but for such as are employed in heavy draught, ten are required. A smaller number does not hold the shoe sufficiently fast; and a greater number, by acting like so many wedges, weaken the hoof, and rather dispose the crust to break off, than give additional security.

The

The manner of disposing the nails, has differed considerably at different times. Some writers have directed four to be placed on each side of the foot, and the hindmost near the heel, leaving between the two rows of nails, a considerable space of the forepart of the foot without any.

The nails thus placed, certainly confined the foot at the sides and heels, left the toe at liberty, and assisted materially the effect of the sloping surface of the common shoe, in altering the form of the foot from a nearly round, to a lengthened figure.

Latterly, it has been strongly recommended, to place the nails principally at the fore part of the foot, in order to prevent the heels from being confined. And certainly this is a wiser practice than the former; but as the foot should rest on the shoe in the whole extent of the crust, it may be thought, that the best way of connecting them in every part alike; would be that of placing the nails at equal distances from each other, in the whole round of the shoe.

However, the objection to this is, that when the foot strikes the ground with considerable force, the back part of it becomes a little broader than when it is in the air, or when the foot is at rest. This spreading is not considerable, nor

does it extend far along the sides of the foot, but it is sufficient to act upon the hindmost nails, when near the heels; hence arises the necessity for there being a greater distance between the last nail and the heel of the shoe, than between any two nails. Accordingly it may be laid down as a general rule, that the last nail should not be nearer the heel, than from two inches to an inch and a half.

Such a distance has been found sufficient to prevent the heels being confined, and not sufficiently great to allow the shoe to spring, and loosen the last nails, as frequently happens when they are farther distant from the heel.

All the nails should be at equal distances from each other, except the two in front, which should be a little wider apart than the rest: this, however, is not a matter of essential consequence; but it is of importance that there would not be any nail in the middle of the toe. For, generally, the action of the foot on the ground has a direct tendency to push the shoe, as it were, backwards along the foot; and it sometimes happens that the shoe is actually thus displaced; in which case it necessarily follows, that the nail in the middle of the toe, must be driven immediately against the sensible parts behind it, whilst the rest
of

of the nails in great measure follow the line of the crust, and so avoid doing mischief to the parts within.

The nail-holes on the upper surface of the shoe should come through the feat, close to the edge of the bevel, that the nails may have a proper and equal hold on every part of the crust, which will be shewn by the clenched ends being each equally distant from the shoe.

As the nail hole is always made with a taper and square-pointed punch, a nail with a head of the same form, will fit it better than one of any other shape.

The most general practice to prevent slipping in frosty weather, is what is called roughing; which is nothing more than making two caulking to each shoe. This is liable to the objections before stated, of throwing the weight too much on the toe, and of the inside caulking sometimes wounding the opposite leg. And it is farther objectionable, because the caulking soon wear down; as, in order that they may take the necessary hold on the ground, they are made sharp and thin. They therefore require being frequently renewed; and hence it generally happens, that a horse which is much worked in frosty weather, has his feet more broken and injured, than in the common wear of many months.

To prevent the necessity of frequent removes, several expedients have been put in practice. Sometimes a few nails, of a larger size than the rest, have been so put in, that the heads stood considerably beyond the level of the shoe; but when these did not break off, as was often the case, they soon wore down.

At other times, nails with large heads, tapering to a point, were screwed into the web of the shoe. Of these, one was usually placed at the toe, and one at each heel. And by this contrivance of the screw, it was imagined, that the nails might be easily replaced when worn out. They are apt, however, to break off at the neck, and are too expensive for common use.

There is, notwithstanding, another plan, which as far as it has been tried, justifies the Author in recommending it.

This

This consists in having nails with a lozenge head, or what may be called a double counterfink, terminating in an edge, instead of coming to a point. This greater breadth of surface, prevents its being rubbed away as fast as a point; the thickness in the middle gives it strength; and the regular taper to the shank, causes it to apply exactly to the sides of the hole in the shoe, by which it is equally supported, and prevented from bending or breaking. There should be four nails to every shoe; that is to say, two in the forepart, and one at each heel.*



These nails are, in effect, so many caulking, with the advantages of allowing a more level tread; of being easily replaced, by putting new nails in the old holes; and by being at a distance from the heel of the shoe, they are not so likely to hurt the opposite leg.

In

* The heads of these nails must be struck in tools, or dies; the four holes in the shoe must be made to correspond with the neck of the nail; and when the nail is driven, the workman must cover the head with a tool, which will receive its upper part, and prevent its being injured by the hammer.

In the greater number of treatises which have been written on Shoeing, it has been usual to state what weight the shoes, for horses employed in different kinds of work, should be ; but all rules in this respect must obviously be very general, as the respective weights necessarily depend upon the size of the hoof, the nature of the country where the horse is principally used, &c. However, as there has been as great a disposition to run into extremes on this as on every other point, connected with the subject of shoeing, it may be proper to observe, that the Author has found it necessary to vary the weights for saddle horses from eight to sixteen ounces, and for carriage horses from twelve to twenty ounces.

Of Shoeing Horses which cut.

To prevent a horse from striking the foot or shoe against the opposite leg, by which it is often bruised or wounded, is an important point ; inasmuch as this accident occurs very frequently, and as it not only blemishes and disfigures the leg, but also endangers the safety of the rider.

The

The parts struck in the hind leg, are the inside of the fetlock joint, and the coronet ; in the fore leg, the inside of the fetlock joint, and immediately under the knee ; which latter is called the speedy-cut, from its happening only when a horse goes fast.

Young horses, when first backed, generally cut their fore legs, although naturally they may be good goers. This arises from their placing the foot on the ground too much under the middle of the breast, in order the better to support the burthen to which they are unaccustomed ; but by degrees they acquire the method of balancing the weight, with the foot in the same direction it would naturally have were they without it. It may therefore be laid down as a general rule, with such horses, that till they regain their natural method of going, the edge of the inner quarter of the shoe should follow exactly the outline of the crust, but should not be set within the crust, nor should the crust itself be reduced in thickness ; as both these practices tend to weaken the inner quarter, and to deform the hoof. And here it must be observed, that the outer edge of the shoe should, in all cases of sound feet, follow exactly the outer edge of the crust, except just at the heel, where it should project a little beyond the line of the hoof.

Horses

Horses with narrow chests have their legs near together, and are apt to cut when they begin to tire; and with these, the practice just mentioned should always be employed. Horses that turn their toes much outwards, are of all others most subject to cut. It has been asserted, that this defect also happens to such as turn them much inwards; however, the Author does not recollect to have met with a single instance of this kind, in the course of his practice. In horses of the first description, it has been long observed, that the inner quarters of the hoof were lower than the outer, and that the fetlock joints were nearer each other, than in horses whose feet pointed straight forwards. These two facts probably led to a conclusion, that if the inner quarters were raised to a level with the outer, and so much the more as they were made proportionably higher, that the fetlock joints would be thrown farther apart, so as to admit of the foot passing by the supporting leg without striking the joint. Accordingly, for the two last centuries at least, it has been usual to make the inner quarter of the shoe higher than the outer; and not only has this been the general practice, but it has been regularly recommended by almost every writer, from that time to the present. And notwithstanding this method has very frequently

quently failed of success, yet repeated disappointment appears never to have led to the circumstance of questioning the truth of the principle. Nay, indeed, the reliance placed upon it has been so strong, probably from the simplicity of the reasoning on which it was founded, that in the cases where it most particularly disappointed expectation, its failure was generally attributed to the practice not being carried sufficiently far; and accordingly the shoe has been still more raised on the inner quarter, and the edges of the crust and shoe have been filed away. When with these expedients it likewise failed, the last resource has been, a circular piece of leather placed round the joint to receive the blow of the foot.

It is now about four years since, that a shoe, with the outer quarter thick, and the inner one thin, was for the first time, in the practice of the Author at least, employed, in a case which had baffled many attempts on the old plan.

On the first trial the horse ceased to cut, nor has he ever done it since; which can only be attributed to his having constantly worn the same kind of shoe. This circumstance did not then excite in the mind of the Author, any doubt, as to the propriety of a practice which has so long and so generally been acknowledged, but was rather considered

ed as an extraordinary exception. However, other bad cases, which occurred occasionally since that period, were treated in the same way, and with the same success. These facts, at length, led the Author to conclude, that a practice which was so uniformly followed by success, in cases where the established one as uniformly failed, must necessarily repose on a better principle; although for a long time he was completely at a loss how to explain it. For if the action of cutting did principally depend upon the faulty position of the fetlock joints, and the feet, with respect to each other; and it appeared to be generally agreed that such was the fact, it should seem, that a means which, by raising the outer quarters, must throw the fetlock joints still nearer to each other, would necessarily increase the defect in question; but as the reverse of this actually takes place, it might induce a suspicion, that there exists some other cause of cutting, which has been hitherto overlooked.

A minute examination of this point would far exceed the limits allotted to this division of the work; and therefore, at present, the Author will confine himself to that part of the subject alone, which is absolutely necessary to be understood.

For horses, therefore, which cut their hind legs, the shoe, at the outer heel, should be from half an inch to an inch in thickness, according to the kind
of

of horse, and to the degree in which he may cut. The web of the shoe should gradually become thinner till it reaches the toe, which should be of the ordinary thickness, and from which it should slope off, and end like a tip in the middle of the inner quarter.* This shoe, in point of effect, would be equally proper for the fore feet, were it not that in such horses as are used for the saddle, the fore feet being more charged with weight than the hind feet, are more particularly subject to be injured, and a horse thus shod on the fore feet, might go unsafe; therefore, it is expedient to let the inner quarter of the shoe be thin, and reach to the heel, but the outer edge should be bevelled off, so as to slope inwards. The same kind of shoe is equally well calculated to prevent the speedy-cut; observing to bevel off, still more strongly, the part which strikes, and not to put in any nails thereabouts. And here, it may be proper to remark, that in sound feet, the heel of the shoe should reach as far on the heel of the hoof, as to admit of the angle formed by the crust and the bar resting fully upon it, but it should not be carried quite as far as the end of the heel of the hoof.

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* For horses which cut only in a slight degree, a shoe of the same thickness throughout, but reaching on the inner quarter only as far as the middle of the foot, will in most instances be found sufficient.

In order to ascertain what would happen to a horse shod with different kinds of shoes, the following trials were made,

EXPERIMENT I.

A horse with a narrow chest, who had never cut, and having parallel shoes on his fore feet, was trotted at about the rate of eight miles an hour in a straight line, over ground sufficiently soft to retain slightly the impressions of the shoes, but not to admit the feet to sink into it.

Two parallel lines were drawn along the track, including between them the prints of the shoes. By these it was found, that there was regularly a distance of nine inches and a half between the outer edge of the near fore shoe, and that of the off fore shoe.

EXPERIMENT II.

Shoes thick in their inner quarter, and like a tip, reaching only half-way on the outer quarter, were then used, and it appeared, that the distance between the outer edges of the prints of the shoes, taken as before, was regularly reduced to eight inches and a half.

EXPERIMENT

EXPERIMENT III.

The same shoes were afterwards placed on the opposite feet, so that the thick heel was on the outer quarter; and the result, under circumstances exactly the same as in the foregoing experiments, was, that the distance between the outer edges of the prints of the shoes, was regularly increased to eleven inches.

To account for these results, it is necessary to attend closely to the different effects produced by the weight of the fore part of the body acting upon the two fore feet, when raised on the inner or outer quarters, during the opposite states of rest and action. And first, with regard to shoes raised on the inner quarter: whilst a horse so shod, is standing still, the fetlock joints are certainly thrown farther apart than when any other kind of shoe is used. Hence, it was concluded, that the limb which supported the body would have its fetlock joint thrown so much outwards, as to keep it completely out of the way of the foot in motion. But it appears, that the impressions made on the ground by such shoes, are an inch nearer together than those made by parallel shoes, and two inches nearer together than those made by shoes raised on the outer quarter. And this may be thus explained: when the horse is at rest, the weight is supported
equally

equally by the two fore feet, but the instant one foot quits the ground, the weight is suddenly transferred ^{el} to the other; and by the outer quarter being lower than the opposite one, the fore part of the horse has a tendency to fall over the outside. To prevent this, the moving foot is suddenly brought close to the fetlock of the supporting foot, in order to relieve it by catching the weight, and the foot itself is placed on the ground, too much under the middle of the breast. The same circumstance occurs to both feet in their turn. And the horse being thus in constant danger of falling to one side or to the other, is constrained to bring his feet near together to preserve his balance, and in doing this, strikes the foot against the opposite fetlock.

It frequently happens, that the more the toes are turned outwards, the nearer the fetlock joints are brought together, and the more the horse is disposed to cut. However, this is true only to a certain extent; for if this faulty position of the lower part of the leg be carried artificially beyond a given point, instead of producing an increased degree of cutting, in most instances it remedies the defect altogether. The reason of this is just the reverse of what takes place when the inner quarter is raised; that is to say, when the weight of the fore part of the body rests only upon one leg, it bears too much
upon

upon the inner quarter, from its being lower than the outer quarter ; and thus the horse has a tendency to fall over to the inside of the supporting leg.

To prevent this, the moving foot is thrown farther from the supporting leg, in order to maintain the balance ; and thus the foot misses the fetlock joint.

THE END.